

BIOCHAR & THE FARM BILL



The 2023 Farm Bill offers an unprecedented opportunity to implement strategic changes at USDA to enable *farmers and forest landowners to engage in conservation, adopt climate smart practices, implement climate resilience solutions, and climate proof their livelihoods* by utilizing biochar in core existing Farm Bill programs.

FARM BILL: TOP 3 BIOCHAR PRIORITIES

1 Use *Biochar as Fiscal Responsibility Tool* in USDA Disaster Assistance, Insurance & Conservation Programs

Reduce insurance premiums for producers that incorporate biochar into soils to mitigate drought, flood, soil health, disease, and prevented planting risks.

Include degraded soil health as an eligible natural disaster & implement a soil health monitoring program.

Include biochar amendment in covered drought resilience measures and all terrestrial Conservation Reserve Program Practices.

2 *Unlock Economic Value & Create Opportunities for Multi-Sector Growth* through Forest Waste Carbon Management program enhancements

Increase funding for the existing Wood Innovations — Energy, Bioenergy, Biofuels & Bioproducts Program to pilot and implement incentive programs for forest waste removal to catalyze flow of fire hazard & GHG emitting wastes out of forests and into value as a biochar feedstock.

Increase funding for Timber & Forest Waste Innovation, State and Private Forest Landscape-Scale Restoration, and Collaborative Restoration Programs.

3 *Energize Rural America's Economies* with Increased Funding for REAP and Fertilizer Production Expansion Grant programs

Increase funding for REAP and allocate a funding set-aside for Bioenergy Projects with Multiple Co-Products, like Biochar Systems, that create local economic benefits above and beyond energy generation to maximize impact of every U.S. taxpayer dollar invested in the program.

BIOCHAR APPLICATIONS

Integrating carbon negative bioenergy production with biochar CDR and biochar application to soils to **support soil health, climate smart agriculture, and ecosystem conservation** creates a pathway to removing 66 gigatons of CO2 a year by 2050.



CROP INSURANCE & DISASTER ASSISTANCE

Last year, the U.S. spent \$12B on Farm Bill Disaster Assistance payouts but took in only \$8B in Crop Insurance premiums. Biochar is a **low cost, high impact tool to close that fiscal responsibility gap.**

- Biochar improves soil's ability to retain water and deliver it to roots under drought conditions, reducing irrigation costs, plant stress, & crop losses.
- Biochar improves soil health across a range of agronomic factors, boosting plant productivity up to 200% and farmer income up to 120%.
- Biochar displaces the need for continued cycles of high cost synthetic fertilizer applications, reduces 60-80% of farm operational expenditure costs.
- Using Biochar in Crop Insurance and Disaster Assistance programs would create 4x the jobs of status quo, create hundreds of millions of dollars in local economic value, and stem the tide of financial losses related to drought and agriculture.



DAIRY FARMING

Biochar can play a critical role in **improving the economics of and future-proofing dairy farm operations**

- Diversify dairy farm revenue through production of high value biochar CDR credits.
- Increase the economic and agronomic value of digestate, turning it into a saleable product or enhancing its ability to displace on farm fertilizer use.
- Increase anaerobic digestion biogas production, reduce enteric methane emissions, and improve livestock health.
- Control agricultural runoff, enhance nutrient management.
- Reduce Scope 1-3 emissions: important for maintaining participation in large dairy company value chains.



FORESTRY

Biochar provides **new pathways to economic growth, revenue diversification, and resilience** for forest industries and rural communities

- Production of high-value Biochar CDR credits.
- Creation of new markets for low value, small diameter, forest management and timber processing wastes and wildfire fuels.
- Biochar use to protect against forest fire, speed reforestation, and develop innovative advanced biomaterials manufacturing economies.
- Generation of distributed baseload carbon negative electricity, green hydrogen, and green methanol for rural community energy security, independence, and leadership in ZEV fuels production.



ENERGY INDEPENDENCE

Give local communities the power to **grid-proof their energy futures**

- Can produce baseload power using locally available low-value biomass wastes available via micro grid or as VPP to support grid.
- Reduces Scope 2 emissions for businesses on microgrid.
- Energy product fungibility: electricity, green hydrogen, green methanol, green ammonia.
- Cost control: 1/5th the capital expenditure of wind or solar green H2; high value biochar and biochar CDR co-products allow for lower electricity prices; insulated from price volatility of fossil fuels & grid instability.



ECOLOGICAL INFRASTRUCTURE

Improves flood resilience & climate resilient green infrastructure for urban and riparian communities

- Improves soil's structure, infiltration rates, and ability to retain water, thereby reducing the occurrence, impacts, and losses from flooding.
- Improves soil health and stability, creating beneficial conditions for water quality and flood control plantings such as wetlands to take hold and function optimally.
- Controls urban and agricultural runoff, protects water quality, and controls algal blooms.



ORPHAN WELL PLUGGING and RESTORATION

Potential to plug, close, and remediate the **3 million+ orphan oil & gas wells** in the U.S

- Turns a massive financial & human health liability into a Biochar CDR & carbon credit.
- Speeds return of contaminated lands back to productive use.
- Creates 4x as many jobs as conventional plugging.
- Builds technical and workforce capacity needed to close, remediate, and optimize economic value of the many end of life oil & gas wells the U.S. and the oil & gas industries will need to tackle next.



MINE RECLAMATION

Biochar is an ideal full spectrum **mine remediation solution**

- Controlling contamination of water bodies and run-off.
- Filling subsidence & prevent fugitive methane emissions.
- Cleaning groundwater.
- Building the soil base for healthy revegetation, afforestation, & return to productive use.
- Generating lucrative CDR credit revenue streams.